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(54) **PROCEDURE FOR ENSURING THE  
OPERATION OF SIGNALLING CHANNELS  
IN A V5 INTERFACE**

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#### (56) References Cited

##### U.S. PATENT DOCUMENTS

5,418,776 \* 5/1995 Purkey et al. .... 370/16

5,751,574 \* 5/1998 Loebig ..... 364/187  
5,781,623 \* 7/1998 Khakzar ..... 379/230  
5,910,980 \* 6/1999 Ogasawara et al. .... 379/142  
6,069,948 \* 5/2000 Yrjana ..... 379/230

#### FOREIGN PATENT DOCUMENTS

0792079 A1 \* 8/1997 (EP) .  
WO 96/17484 6/1996 (WO) .  
WO 97/16936 5/1997 (WO) .  
WO 97/35404 9/1997 (WO) .

#### OTHER PUBLICATIONS

A. Gillespie "Interfacing Access Networks to Exchanges:  
The ETSI V5 Approach" *IEEE Global Telecommunication  
Conference*, vol. 3, pp. 1754-1758, Dec. 1992.

K. Khakzar "V5 Interfaces between Digital Local  
Exchanges and Access Networks" *Frequenz*, vol. 48, No.  
1-2, ppl. 44-50, 1994.

International Search Report for PCT/FI98/00198, Apr. 9,  
1998.

\* cited by examiner

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#### (57) ABSTRACT

The present invention relates to a procedure for ensuring the  
operation of signalling channels in a V5 interface between a  
local exchange (LE) and an access node (AN). The interface  
includes at least two links (L), in conjunction with redefi-  
nition of the interface composition. Redefinition generally  
involves making changes in the V5 interface data, such as  
the location of signalling channels on the links. According to  
the invention, the operation of protected channels in con-  
junction with restarting is ensured by starting the protected  
channels on the channels defined for them in the new  
composition and on the channels to which they were trans-  
ferred in conjunction with the protection switch-over.

5 Claims, 1 Drawing Sheet

